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[Continued on next page]

(54) Title: G-PROTEIN COUPLED RECEPTOR

```
Model Seq-from Seq-to HMM-from HMM-to Score E-value Alignment Description
!! 71m_1 62 332 1 275 211.7 8.2e-61 global 7 transmembrane receptor (rhodopsin family)

71m_1 62-332
71m_1: domain 1 of 1, from 62 to 332: score 211.7, E = 8.2e-61
*->GNLLVilvrlrtkklrtptnifilNLAVADLLflltlppwalyylvg
GN+LV +v+r+k +rt+tnifi+LA+DLL++++ p+++ +
query 62 GNALVFYVTRSKAMRTVTNIFICSLALSDLLITFFCIPVTMLQNIS 108

gsedwfpGsalCklvtaldvvnmyaSilLtaISIDRYLAivhPlryrrr
+ W+ G + Ck v +++++ + il++t+I++R++ vhp++ +
query 109 --DNWLGGAFCIKMVFFVQSTAVVTEILTMTCLIAVERHQGLVHPFMKWQ 156

rtsprpAkvvillvWvlalllslPpllfswwktveegngtln.vvvtvCl
+t rRA+ +++vW++a+++ P+ +++ + + 1 ++++ Cl
query 157 YT-NRRAPFMLGVVWLVAIVTGVSPMWEVQQLKIKYDF---LYEKEHCCL 202

idfpeestastvstwlsvyllstlvgFlPllvilvcYtrIlrtlrkrar
+ + ++ ++++++ FllPl v+l++Y+ I +l+ r
query 203 EEWTSFV-----HQKIYTTFILVILFLLPLKVMILILYSKIGYELWIKKR 246

kgas.....kkrsskerkaaktllvvvvvFvLCWlPyfiavlld
g+ + ++ +++ k ++k++a+ +++vv +F++CW+P+++v ++
query 247 VGDGsvlrtingkemSKTARKEKRAVIMVTVVAFVAVCWAPFVHVMMI 296

tlc.lsiimastCelervlptallvtl.wLayvNscINPiY<-*
+ ++ e+ +v+ ++++++ +++Ns+ NPi+Y
query 297 EYSNPER-----EYDDVTIKMIFATVqIIGFSNSICKPIVY 332
```

(57) Abstract: We disclose Conrad G-protein coupled receptor (GPCR) polypeptides comprising the amino acid sequence shown in SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 14 or SEQ ID NO: 17 and homologues, variants and derivatives thereof. Nucleic acids capable of encoding Conrad polypeptide are also disclosed, in particular, those comprising the nucleic acid sequences shown in SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 16 or SEQ ID NO: 18.

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TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

**Declaration under Rule 4.17:**

— of inventorship (Rule 4.17(iv)) for US only

**(88) Date of publication of the international search report:**

3 July 2003

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB02/04725

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 C07K14/705

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

SEQUENCE SEARCH, EPO-Internal, WPI Data, PAJ, BIOSIS, EMBASE

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00 78809 A (SMITHKLINE BEECHAM CORP) 28 December 2000 (2000-12-28)  the whole document	1-15, 18-22, 26-37

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

13 May 2003

Date of mailing of the international search report

21/05/2003

Name and mailing address of the ISA  
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Authorized officer

Sprinks, M

# INTERNATIONAL SEARCH REPORT

Intern. application No.  
PCT/GB 02/04725

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
  
Although claims 23, 24, 26 and 36 are directed to a methods of treatment and diagnosis performed on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☒ Claims Nos.: 16,17,23-25  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210.
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/SA/ 210

Continuation of Box I.2

Claims Nos.: 16,17,23-25

Present claims 16, 17 and 23-25 (as well as claims 20-22 and 26-28 partially) relate to compounds defined solely by reference to a desirable characteristic or property, namely the ability to be identified by a screening process or the ability to bind to, antagonise etc. the polypeptides of the invention.

The claims cover all compounds having this characteristic or property, whereas the application only provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for a very limited number of these (e.g. antibodies). In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compounds by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has only been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the compounds referred to in the application as filed.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No  
PCT/GB 02/04725

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0078809	A	28-12-2000	EP 1189944 A1	27-03-2002
			WO 0078809 A1	28-12-2000
			US 2001025099 A1	27-09-2001